CLAIMS

What is claimed is:

1. A bridging clutch for installation in a hydrodynamic coupling device having a housing, a pump wheel, and a turbine wheel, said bridging clutch comprising:

a torsional vibration damper comprising a drive element for connecting to a drive shaft, a take-off element for connecting to a transmission input shaft, and a plurality of circumferential springs between said elements, each said element having openings for receiving said springs, each said element having at least one axial support area which is in contact with the at least one axial support area of the other said element for axially positioning the turbine wheel with respect to the housing;

at least one friction element and at least one friction surface for providing a working connection between said drive element and said drive shaft; and

a piston which can move axially between a first axial position, wherein said at least one friction element engages said at least one friction surface to make said working connection, and a second axial position, wherein said working connection is released.

2. A bridging clutch as in claim 1 wherein one of said elements comprises a pair of cover plates, each said cover plate comprising at least one said axial support area, and the other of said elements comprises a hub disk having at least two opposed axial support areas, said hub disk being received between said cover plates.

3. A bridging clutch as in claim 1 wherein at least one of said elements comprises axial stiffeners.

4. A bridging clutch as in claim 3 wherein said axial stiffeners comprise at least one of set-offs and projections formed from a planar sheet.

5. A bridging clutch as in claim 4 wherein said drive element comprises a pair of cover plates which are provided with said axial stiffeners.

6. A bridging clutch as in claim 1 wherein at least one of said elements is heat treated to provide rigidity.

7. A bridging clutch as in claim wherein the openings of at least one of said elements hold said circumferential springs essentially without radial play.

8. A bridging clutch as in claim 1 wherein said circumferential springs are pre-curved with respect to the axis of said elements.

9. A bridging clutch as in claim 8 wherein said circumferential springs are pre-curved at high temperature.

10. A bridging clutch as in claim 1 comprising two said circumferential springs offset 180 degrees from each other.

11. A bridging clutch as in claim 1 comprising a maximum of eight circumferential springs spaced apart by equal angular distances.

12. A bridging clutch as in claim 1 comprising from three to six circumferential springs spaced apart by equal angular distances.

13. A bridging clutch as in claim 1 wherein at least one of said elements has at least one pass-through opening.

14. A bridging clutch as in claim 13 further comprising an assembly connection for connecting said drive element to said turbine wheel, said at least one pass-through opening being aligned with said assembly connection.

15. A bridging clutch as in claim 2 further comprising an assembly connection fixed to one of said cover plates for connecting said drive element to said turbine wheel, the other one of said cover plates and said hub disk each having a pass-through opening aligned with said assembly connection.

16. A bridging clutch as in claim 13 wherein said at least one pass-through opening acts as a flow connection between a pressure chamber adjacent to the piston and a hydrodynamic circuit.

17. A bridging clutch as in claim 13 comprising a plurality of pass-through openings in each of said drive element and said take-off element, said pass-through openings in each said element being spaced apart by equal angular distances.

18. A bridging clutch as in claim 13 further comprising a housing hub and a retaining element fixed to said housing hub, said piston being mounted non-rotatably but with freedom of axial movement to said retaining element, said retaining element having at least one pass-through opening aligned with said pass-through openings in said drive element and said take-off element.

19. A bridging clutch as in claim 2 wherein said take-off element comprises a hub for centering the torsional vibration damper on the transmission input shaft, said hub carrying said hub disk.